

10/522,389

<210> 5
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 <212> DNA
 <213> *Propionibacterium freudenreichii*

<220>
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 Met Ala Thr Arg Asn Gly Leu Leu Ala Ala Trp Gly Leu Phe Thr Val
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ctg ccc gca ccc gtg gtg gcc gag gtg gat gag cga ctc gcc gtg cgg 96
 Leu Pro Ala Pro Val Val Ala Glu Val Asp Glu Arg Leu Ala Val Arg
 20 25 30

gcg atc gcc tcg atg ccg tgg gtc ggc ctc gga ctg ggc ctg atc gcc 144
 Ala Ile Ala Ser Met Pro Trp Val Gly Leu Gly Leu Gly Leu Ile Ala
 35 40 45

gga ctc ggc tgc gcc atc gtc acc gtc gcg ggg ggc ggc cag cca ctg 192
 Gly Leu Gly Cys Ala Ile Val Thr Val Ala Gly Gly Gly Gln Pro Leu
 50 55 60

gca atc gca gca ggc ctg gca atc ctg gcc ctg tgc acc ggc ttc ctg 240
 Ala Ile Ala Ala Gly Leu Ala Ile Leu Ala Leu Cys Thr Gly Phe Leu
 65 70 75 80

cac ctc gac gga ctc gcc gac acc gcc gac ggc ctg ggc tcc cgc aag 288
 His Leu Asp Gly Leu Ala Asp Thr Ala Asp Gly Leu Gly Ser Arg Lys
 85 90 95

ccg gcc cac gag gcc ctg acc atc atg cgc caa tca gac atc ggg ccc 336
 Pro Ala His Glu Ala Leu Thr Ile Met Arg Gln Ser Asp Ile Gly Pro
 100 105 110

atg ggc gtc acc gcc atc atc ctc gtg ctg gcg ttg gag atc gcg gca 384
 Met Gly Val Thr Ala Ile Ile Leu Val Leu Ala Leu Glu Ile Ala Ala
 115 120 125

ggc ggt tca gga cac ott gat ggc tgg cgt ggc gtc tgg ctg ctg gtg 432
 Gly Gly Ser Gly His Leu Asp Gly Trp Arg Gly Val Trp Leu Leu Val
 130 135 140

aca atg ccc atg gtg gcg cgc gtc agc gcc ctg tcc gcc acc gga cga 480
 Thr Met Pro Met Val Ala Arg Val Ser Ala Leu Ser Ala Thr Gly Arg
 145 150 155 160

tgg att ccg agc gcc cac aag aag ggg ttc gga gcg ctc ttc gcc gga 528
 Trp Ile Pro Ser Ala His Lys Lys Gly Phe Gly Ala Leu Phe Ala Gly
 165 170 175

aag acg cac cct gcg acg atc gtg gtc gcc tca gtg atc gcc gcg gtg 576
 Lys Thr His Pro Ala Thr Ile Val Val Ala Ser Val Ile Ala Ala Val
 180 185 190

atc gcc gcg ggc agt gga tgg ctg ctc ttc ggc tgg cgg gcc gcc ctc 624
 Ile Ala Ala Gly Ser Gly Trp Leu Leu Phe Gly Trp Arg Ala Ala Leu
 195 200 205
 gtg gcg gtg tgt gcc tgc ctg gcc agc tgg gtc ttc ggc gtg gcg tgg 672
 Val Ala Val Cys Ala Cys Leu Ala Ser Trp Val Phe Gly Val Ala Trp
 210 215 220
 cgc cgc cat atc ctg gcg cgg ctc gga gga ctg acc ggc gac acc ttc 720
 Arg Arg His Ile Leu Ala Arg Leu Gly Gly Leu Thr Gly Asp Thr Phe
 225 230 235 240
 ggg tcc ctg gtc gag atg agc ggc ctg gcc tat ttg ttg acc ctg gca 768
 Gly Ser Leu Val Glu Met Ser Gly Leu Ala Tyr Leu Leu Thr Leu Ala
 245 250 255
 ttg ttc gcc tga 780
 Leu Phe Ala

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 <212> PRT
 <213> *Propionibacterium freudenreichii*

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 35 40 45
 Gly Leu Gly Cys Ala Ile Val Thr Val Ala Gly Gly Gly Gln Pro Leu
 50 55 60
 Ala Ile Ala Ala Gly Leu Ala Ile Leu Ala Leu Cys Thr Gly Phe Leu
 65 70 75 80
 His Leu Asp Gly Leu Ala Asp Thr Ala Asp Gly Leu Gly Ser Arg Lys
 85 90 95
 Pro Ala His Glu Ala Leu Thr Ile Met Arg Gln Ser Asp Ile Gly Pro
 100 105 110
 Met Gly Val Thr Ala Ile Ile Leu Val Leu Ala Leu Glu Ile Ala Ala
 115 120 125
 Gly Gly Ser Gly His Leu Asp Gly Trp Arg Gly Val Trp Leu Leu Val
 130 135 140
 Thr Met Pro Met Val Ala Arg Val Ser Ala Leu Ser Ala Thr Gly Arg
 145 150 155 160
 Trp Ile Pro Ser Ala His Lys Lys Gly Phe Gly Ala Leu Phe Ala Gly